MacroHard (Team h)

MacroCenter
Software Requirements Specification
For Website Application

Version 1.0

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Revision History

Date	Version	Description	Author
3/28/2023	1.0	Completed the first report which included sections 1 - 4	Nabil Omi Tanim Islam Jobanpreet Singh Jiazhou Zhang

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1. Introduction

1.1 Purpose

This specification outlines the requirements of a website in which a user is able to purchase computer hardware. At a high level, this website should have both a guest preview to browse the items in the store along with an authenticated user view encapsulating balance, purchase history, reviews, and a number of other features.

1.2 Scope

This software requirement specification applies to a website that allows users to build their computer, purchase computer related parts or shop prebuilt computers. It includes one use-case diagram which describes the main function that each of the four different users (Visitor, Customer, Employee, Owner) can perform. Additionally, this document emphasizes the framework and technologies that will be used.

1.3 Definitions, Acronyms, and Abbreviations

Front-end: Everything the user either sees or interacts with when they visit the website.

- Scroll through the page and view the items.
- Able to comment on items.
- Apply to be a customer.
- Add/Remove items into Cart as customer.
- Review items.
- Deposit money.
- Customer Support

Back-end: Everything the user doesn’t see.

- Employees can add or remove a customer depending on customer application.
- Process customer’s application.
- Store owners can add/remove employees.

Authentication: Verifies who a user is, while authorization controls what a user can access.

- Login as a customer.
- Visit as a guest.
- Login as Employee or the owner.

NoSQL database: Use a variety of data models for accessing and managing data.

Version control: The practice of tracking and managing changes to software code.

1.4 References

Front-end and back-end https://nextjs.org/docs/guides/building-forms#part-1-html-form

SQLite Database https://sqlite.org/index.html

Vercel https://vercel.com/docs

Firebase https://firebase.google.com/docs

1.5 Overview

The rest of this specification outline contains Use-Case Model Survey, which describe the purposes, and permissions for individual users like guest, customer, employee, and the store owner. Use-case report to show how users can interact with the features on the website. Use-Case Diagram shows the users and the main functions of the application.

2. Overall Description

2.1 Use-Case Model Survey

List of user classes, purposes, permissions:

Guest

- Base user, shown upon entering the store for the first time.
- Permissions:
    - Browse store
    - Comment on items
    - Apply to be a customer

Customer

- Potentially paying customer, shown upon signing up to be a customer and being approved. Should be shown recommendations.
- Permissions:
    - All permissions granted to **Guest**
    - Deposit money into account
    - Configure/build computer
    - Add items to cart
    - Receive ratings
    - Receive warnings
    - Communicate with employees
    - Receive suspension
    - Review items

Employee

- Employees of the store should be able to manage customers and items. Has metrics for employee performance.
- Permissions:
    - All permissions granted to **Guest**
    - Create suggested computer builds
    - Process customer applications
    - Receive ratings
    - Receive warnings
    - Communicate with customers
    - Review customers
    - Remove suggested computer builds

Store Owner

- Owner of the store
- Permissions:
    - All permissions granted to **Employee**
    - Manage **Employee**s
    - Process customer decision protests

- Receive comments about **Employee**s

List of actions:

Comment on Item

- Per-item comment store, allow guests to talk about item
- Minimum requirement to act: **Guest**

Deposit Money

- Per-customer action, Balance should be a per customer attribute
- Minimum requirement to act: **Customer**

Configure Computer

- Configure computer builds to purchase and show on site
- Minimum requirement to act: **Customer**

Add to Cart

- Add items to cart to purchase
- Minimum requirement to act: **Customer**

Review Product

- Add a review post-purchase of a product
- Minimum requirement to act: **Customer**

Chat

- Chat with an employee regarding a product for support
- Minimum requirement to act: **Customer**

Process Customer Application

- Add or remove a customer depending on customer application
- Minimum requirement to act: **Employee**

Review Customer

- Add complaint or compliment regarding a customer
- Minimum requirement to act: **Employee**

Create Suggested Build

- Add computer builds which customers will be suggested upon entering the website
- Minimum requirement to act: **Employee**

Add Employee

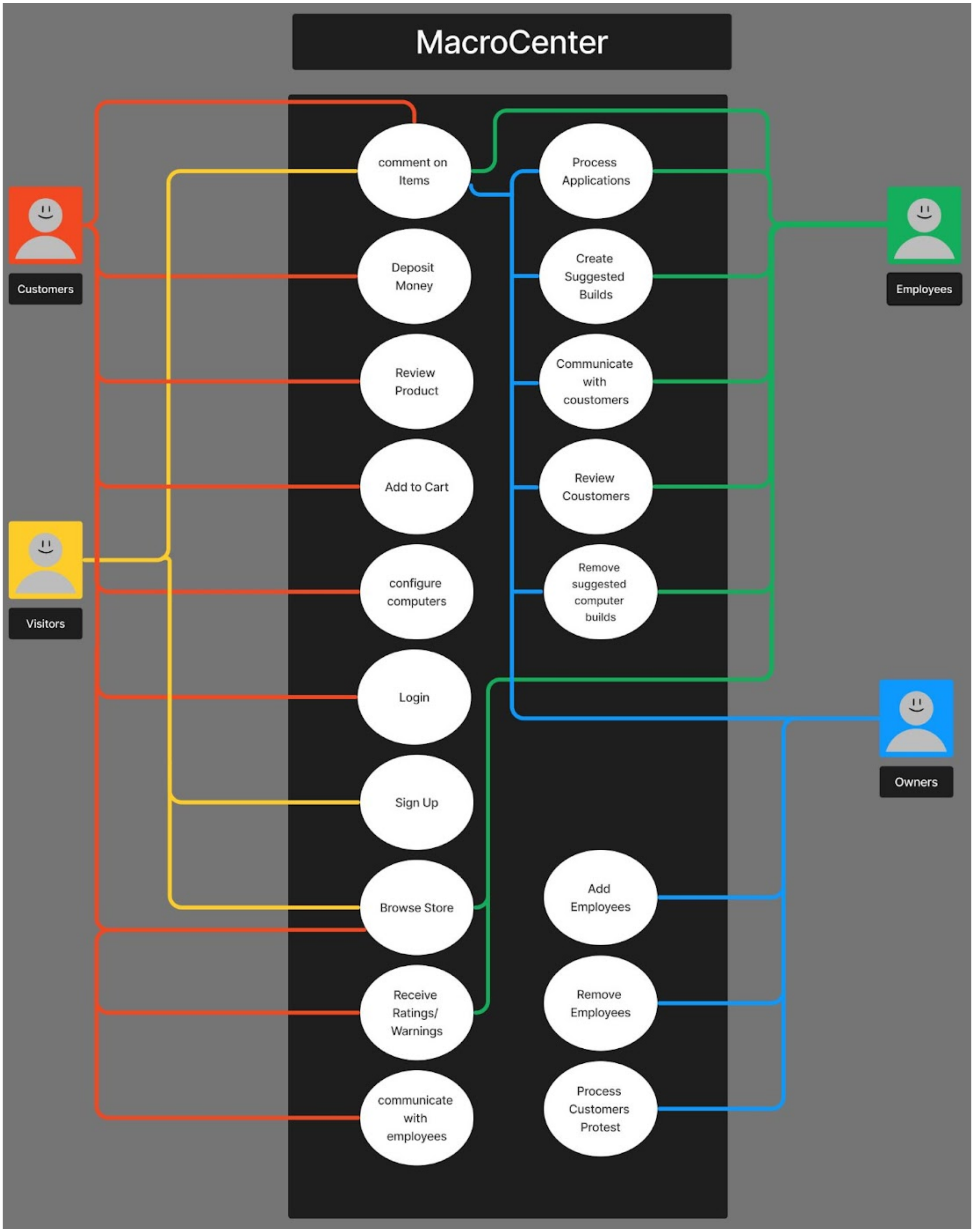
- Add new employee
- Minimum requirement to act: **Store Owner**

Remove Employee

- Remove poorly performing employee
- Minimum requirement to act: **Store Owner**

Process Customer Protest

- Process a customer protest upon being rejected by an employee
- Minimum requirement to act: **Store Owner**


MacroCenter
Customers
Visitors
Employees
Owners
comment on Items
Deposit Money
Review Product
Add to Cart
configure computers
Login
Sign Up
Browse Store
Receive Ratings/ Warnings
communicate with employees
Process Applications
Create Suggested Builds
Communicate with coustomers
Review Coustomers
Remove suggested computer builds
Add Employees
Remove Employees
Process Customers Protest

2.2 Assumptions and Dependencies

This system will utilize the following technologies:

- NextJS: Front-end and back-end
- Firebase: Authentication and databases (with non-static information)
- SQLite: Base products database (manually updated lookup table)
- Vercel: Deployment to production
- GitHub: Version control

The project will be built using TypeScript, TSX (similar to HTML), and CSS. If required, UI component libraries and other styling methods may be used. Additionally, we assume that the products database will not be written to frequently and will be small. This means that it is possible to maintain a small manually updated SQLite database for the application. If required, it is possible to migrate this to the Firebase real-time database.

3. Specific Requirements

3.1 Use-Case Reports

Guest User Actions:

- **Browse Store:** Users can browse the store and look at all of the items available for sale.
- **Comment:** Users can leave feedback on any item.
- **Customer Application:** Users can apply to be a customer for the store by inputting their personal information.

Customer User Actions:

- **Browse Store:** Users can browse the store and look at all of the items available for sale.
- **Comment:** Users can leave feedback on any item.

- **Deposit Money:** Customers must be able to deposit money into their accounts to make purchases.
- **Purchase Computers/Parts:** Customers should be able to purchase computers and computer parts by using the system. If their purchase amount exceeds their account balance, the purchase will be denied and they will be given a warning.
- **Build Computer:** Customers must be able to build their own computers using the system. They should be able to choose from suggested computer builds or have the ability to customize their builds as much as they like. The system will automatically check for compatibility. Customers will also be given the option to allow the store to use their customized build as a new suggested build on their system.
- **Rate Configuration:** Upon successfully making a purchase, customers are given the option to rate their computer configuration on a scale of 1-5, with 1 being the worst rating and 5 being the best rating. If a configuration receives at least 3 positive ratings, and no negative ones, the employee or the customer who contributed will receive a compliment. Conversely, if a configuration receives more than 3 negative ratings and no positive ratings, the party responsible will receive a warning.
- **Communication:** Customers should have the ability to communicate any concerns they have regarding their purchase with store employees. Furthermore, they should be able to provide feedback in the form of compliments, or complaints to the store owner.

Store Employees Actions:

- **Process Customer Application:** Store Employees must approve or reject customer applications. In the event they reject an applicant, they will record a memo for the store owner in case of any potential disputes by the customer.
- **Review Customer:** The store employee can provide feedback for a customer in the form of complaints or compliments.
- **Create Suggested Build:** Store Employees must be able to provide suggested computer builds for different types of computing needs. These needs include business, gaming and academics.

Store Owner Actions:

- **Add Employee:** Store owners should be able to hire employees as they please.
- **Remove employee:** Store Owners should be able to terminate employees as they please.
- **Process/Settle Disputes:** Store Owners should be able to process any complaints or disputes made by both store employees and customers. In case of negative behavior, they must have the power to issue 3 warnings to parties involved, and in case of positive behavior they can issue compliments as well.

3.2 Supplementary Requirements

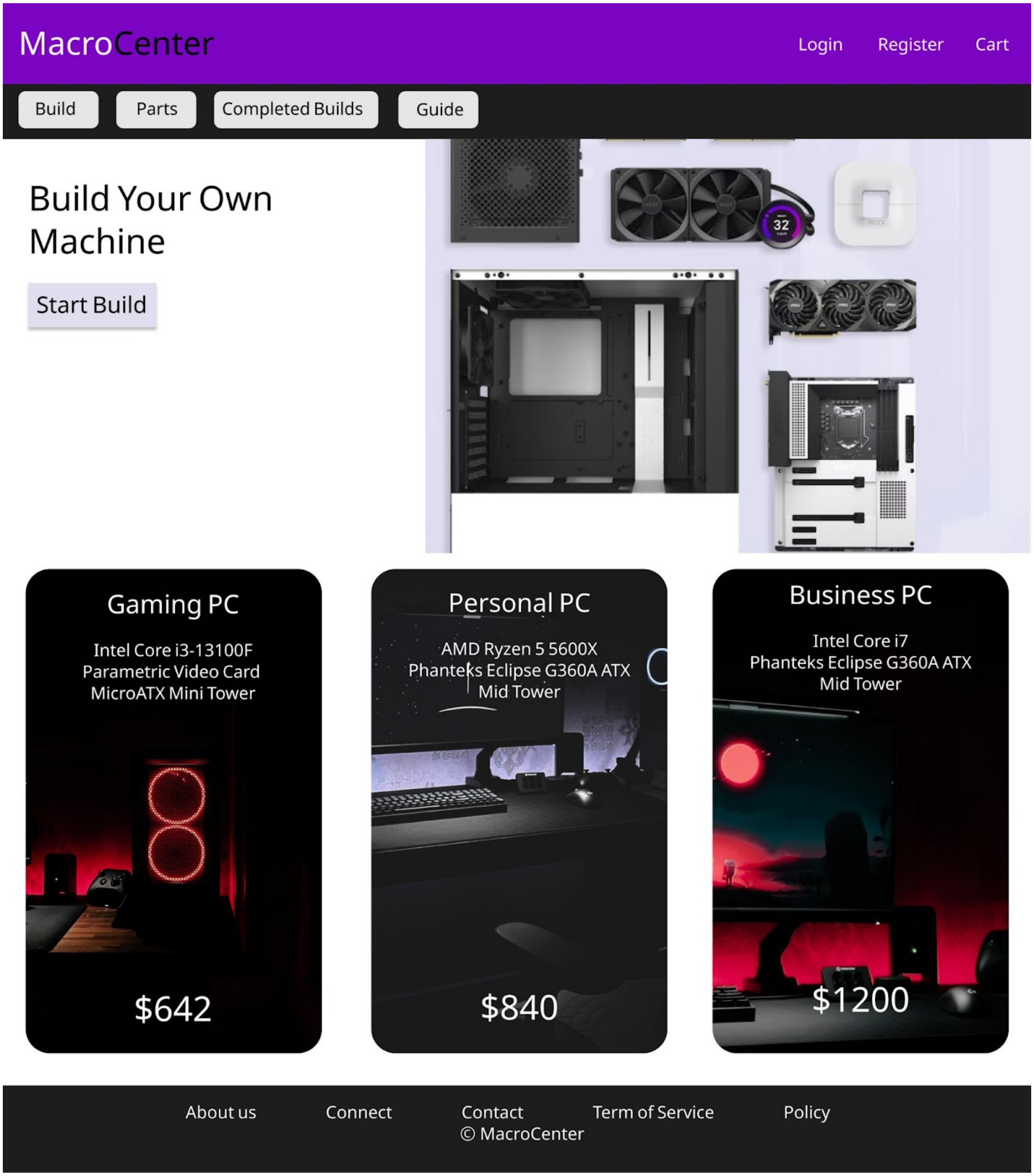
- **User-Interface:** The system must have a personalized GUI for each type of user. Different users will be shown different content (images, graphics) on the screen when logged in.
- **User-Types:** The system must differentiate between 4 types of users: customer, store employee, store owner and visitors.
- **Warning System:** The system must have a warning system to manage customer and employee behavior. Any customer who receives 3 warnings will be removed from the system and not be able to log in anymore. They will be directed to visit store employees in person for account closing matters if they attempt to log in. Any store employees who receive up to 3 warnings will be demoted, and an employee with 2 demotions will be terminated from their position.
- **Compliments System:** The system must have a compliments system that rewards positive behavior. An employee with 3 compliments will receive a promotion, and a customer with 3 compliments will receive a 10% discount on their next purchase.
- **Language Checking:** Any comments or communications of the system among visitors, customers, and employees should go through language checking, and taboo words will be replaced with *. If a visitor's comment contains more than three taboo words, it will be deleted, and a warning will be issued.

4. Supporting Information

4.1 Index

4.2 Appendices A: Mock up of the website

This is a mockup of our landing page for the website. The final project may have some changes to the design but the majority of the webpage will follow this layout and scheme.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